

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: ICHIKAWA, Naoya et al. Conf.:  
Appl. No.: New Group:  
Filed: February 26, 2002 Examiner:  
For: DEPROTEINIZED NATURAL RUBBER LATEX,  
METHOD OF PREPARING THE SAME, RUBBER  
PRODUCT USING THE SAME, AND PROTEOLYTIC  
AGENT FOR DEPROTEINIZED NATURAL RUBBER  
LATEX

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
Washington, DC 20231

February 26, 2002

Sir:

The following preliminary amendments and remarks are respectfully submitted in connection with the above-identified application.

IN THE SPECIFICATION:

Please replace the paragraph beginning on page 12, line 6, with the following rewritten paragraph:

--As used herein, the expression "coagulation of the rubber occurs" refers to the fact that the rubber component in the deproteinized natural rubber latex is completely isolated in the upper layer of the latex in the form of a coherent solid content

(in such a case, an aqueous solution containing  $\text{Ca}^{2+}$  becomes transparent) or the fact that the coherent solid content is partially observed in the deproteinized natural rubber latex (in such a case, the aqueous solution containing  $\text{Ca}^{2+}$  is still in the state of white turbidity).--

Please replace the paragraph beginning on page 12, line 15, with the following rewritten paragraph:

--As used herein, the expression "coagulation of the rubber does not occur" refers to the fact that the rubber component in the deproteinized natural rubber latex is maintained in the dispersed and suspended state and the coherent rubber solid content is not observed in the latex (in such a case, the aqueous solution containing  $\text{Ca}^{2+}$  is still in the state of white turbidity).--

Please replace the paragraph beginning on page 12, line 21, and continuing to page 13, with the following rewritten paragraph:

--The presence or absence of "coagulation of the rubber component" is judged whether or not the rubber component in a deproteinized natural rubber latex is observed in the form of a coherent solid content after adding dropwise the latex in an aqueous solution wherein the concentration of  $\text{Ca}^{2+}$  is controlled to a predetermined value. In case "coagulation of the rubber component does not occur", the rubber component is rapidly

dispersed in the aqueous solution containing  $\text{Ca}^{2+}$  when the latex is added dropwise.--

Please replace the paragraph beginning on page 16, line 11, with the following rewritten paragraph:

-- According to the inventions (7) and (8), it is made possible to prepare a deproteinized natural rubber latex wherein coagulation of a rubber component does not occur when the concentration of calcium ions ( $\text{Ca}^{2+}$ ) is 0.01 mol/L or less and coagulation of the rubber component occurs when the concentration of  $\text{Ca}^{2+}$  is 0.1 mol/L or more.--

Please replace the paragraph beginning on page 16, line 25, with the following rewritten paragraph:

--The method of preparing the deproteinized natural rubber latex of the invention (7) is one aspect of the method of preparing the deproteinized natural rubber latex according to the invention (2). The method of preparing the deproteinized natural rubber latex of the invention (8) is one aspect of the method of preparing the deproteinized natural rubber latex according to the invention (3).--

Please replace Table 1 beginning on page 25, line 10, with the following rewritten Table 1:

Table 1

\*Surfactant H (having high coagulation properties to  $\text{Ca}^{2+}$ )

No.	Kind and name of surfactants
H-1	Carboxylic acid anionic surfactant
H-1-1	Potassium oleate
H-1-2	Sodium dialkylsuccinate
H-1-3	Sodium oleate
H-1-4	Sodium laurate
H-1-5	Sodium stearate
H-2	Higher alcohol sulfate ester salt anionic surfactant
H-2-1	Sodium lauryl sulfate
H-2-2	Sodium cetyl sulfate
H-2-3	sodium stearyl sulfate
H-2-4	Sodium oleyl sulfate
H-3	Sulfonic acid anionic surfactant
H-3-1	Sodium dodecylbenzene sulfonate
H-4	Phosphoric acid anionic surfactant
H-4-1	Potassium polyoxyethylene nonylphenyl phosphate

#### IN THE CLAIMS:

Please amend the claim as follows:

9. (Amended) A rubber product using a deproteinized natural rubber latex, which is obtained by dipping a dipping mold, the surface of which is coated with an anode coagulant, in the deproteinized natural rubber latex containing a vulcanizing agent added therein of claim 1, vulcanizing a rubber film formed on the surface of the dipping mold, and removing the rubber film from the dipping mold.

REMARKS

Entry of the above amendments is earnestly solicited. An early and favorable first action on the merits is earnestly solicited.

**Attached hereto is a marked-up version of the changes made to the application by this Amendment.**

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Andrew D. Meikle (Reg. #32,868) at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By 

Andrew D. Meikle, #32,868

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Attachments

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(Rev. 12/19/01)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

The paragraph beginning on page 12, line 6, has been rewritten as follows:

--As used herein, the expression "coagulation of the rubber occurs" refers to the fact that the rubber component in the deproteinized natural rubber latex is completely isolated in the upper layer of the latex in the form of a [creamy] coherent solid content (in such a case, an aqueous solution containing  $\text{Ca}^{2+}$  becomes transparent) or the fact that the [creamy] coherent solid content is partially observed in the deproteinized natural rubber latex (in such a case, the aqueous solution containing  $\text{Ca}^{2+}$  is still in the state of white turbidity).--

The paragraph beginning on page 12, line 15, has been amended as follows:

--As used herein, the expression "coagulation of the rubber does not occur" refers to the fact that the rubber component in the deproteinized natural rubber latex is maintained in the dispersed and suspended state and the [creamy] coherent rubber solid content is not observed in the latex (in such a case, the aqueous solution containing  $\text{Ca}^{2+}$  is still in the state of white turbidity).--

The paragraph beginning on page 12, line 21, and continuing to page 13, has been rewritten as follows:

--The presence or absence of "coagulation of the rubber component" is judged whether or not the rubber component in a deproteinized natural rubber latex is observed in the form of a **[creamy] coherent** solid content after adding dropwise the latex in an aqueous solution wherein the concentration of  $\text{Ca}^{2+}$  is controlled to a predetermined value. In case "coagulation of the rubber component does not occur", the rubber component is rapidly dispersed in the aqueous solution containing  $\text{Ca}^{2+}$  when the latex is added dropwise.--

The paragraph beginning on page 16, line 11, has been rewritten as follows:

-- According to the inventions (7) and (8), it is made possible to prepare a deproteinized natural rubber latex wherein coagulation of a rubber component does not occur when the concentration of calcium ions ( $\text{Ca}^{2+}$ ) is 0.01 mol/L or less and coagulation of the rubber component occurs when the concentration of  $\text{Ca}^{2+}$  is 0.1 mol/L or more. **[The method of preparing the deproteinized natural rubber latex of the invention (7) is one aspect of the method of preparing the deproteinized natural rubber latex according to the invention (2).]**--

The paragraph beginning on page 16, line 25, has been rewritten as follows:

--The method of preparing the deproteinized natural rubber latex of the invention (7) is one aspect of the method of preparing the deproteinized natural rubber latex according to the invention (2). The method of preparing the deproteinized natural rubber latex of the invention (8) is one aspect of the method of preparing the deproteinized natural rubber latex according to the invention (3).--

Table 1 beginning on page 25, line 10, has been rewritten as follows:

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H-1-5	Sodium stearate
H-2	Higher alcohol sulfate ester salt anionic surfactant
H-2-1	Sodium <u>[laurate] lauryl sulfate</u>
H-2-2	Sodium cetyl sulfate
H-2-3	sodium stearyl sulfate
H-2-4	Sodium oleyl sulfate
H-3	Sulfonic acid anionic surfactant
H-3-1	Sodium dodecylbenzene sulfonate
H-4	Phosphoric acid anionic surfactant
H-4-1	Potassium polyoxyethylene nonylphenyl phosphate



In the Claims:

The claim has been amended as follows:

9. (Amended) A rubber product using a deproteinized natural rubber latex, which is obtained by dipping a dipping mold, the surface of which is coated with an anode coagulant, in the deproteinized natural rubber latex containing a vulcanizing agent added therein of **[any one of claims 1 to 6] claim 1**, vulcanizing a rubber film formed on the surface of the dipping mold, and removing the rubber film from the dipping mold.